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AUG 20 2007

Confirmation No. 6730

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:	LANKHORST <i>et al.</i>	Examiner:	Ingham, John C.
Serial No.:	10/530,449	Group Art Unit:	2814
Filed:	April 6, 2005	Docket No.:	NL020983 US
Title:	ELECTRIC DEVICE COMPRISING PHASE CHANGE MATERIAL		

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence and the papers, as described hereinabove, are being transmitted via facsimile-Formal Entry, to the attention of the Examiner at Commissioner for Patents, MAIL STOP APPEAL BRIEF, P.O. Box 1450, Alexandria, VA 22313-1450, on Monday, August 20, 2007.

Facsimile No.: 571 273-8300

By:



Kelly S. Waltigney

AMENDED APPEAL BRIEF

Mail Stop Appeal Brief-Patents  
Commissioner For Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Customer No.

65913

Dear Sir:

In response to the Notice of Defective Appeal Brief dated August 10, 2007, this is an Amended Appeal Brief submitted pursuant to 37 CFR § 41.37(d) for the above-referenced patent application.

This Amended Appeal Brief reflects changes only to Grounds of Rejection portion (*i.e.*, the listing of grounds of rejection on appeal for claim 12 has been added) and to the Argument portion (*i.e.*, the addition of Section C to address the rejection of claim 12). Apart from these portions (and this cover page), this brief duplicates the Appeal Brief filed on July 2, 2007.

Although no fee is believed to be necessary, authorization is given to charge/credit Deposit Account No. 50-0996 (NXPS.235PA) for any necessary fees/overages in support of this filing.

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**I. Real Party In Interest**

The real party in interest is NXP Semiconductors. The application is presently assigned of record, at reel/frame nos. 016940/0500 to Koninklijke Philips Electronics, N.V., headquartered in Eindhoven, the Netherlands. We have been authorized by both the assignee of record and NXP Semiconductors to convey herein that the entire right, title and interest of the instant patent application have been transferred to NXP Semiconductors.

**II. Related Appeals and Interferences**

While Appellant is aware of other pending applications owned by the above-identified Assignee, Appellant is unaware of any related appeals, interferences or judicial proceedings that would have a bearing on the Board's decision in the instant appeal.

**III. Status of Claims**

Claims 1-12 stand rejected and are presented for appeal. A complete listing of the claims under appeal is provided in an Appendix to this Brief.

**IV. Status of Amendments**

No amendments have been filed subsequent to the Office Action dated February 2, 2007.

**V. Summary of Claimed Subject Matter**

Commensurate with independent claim 1, an example embodiment of the present invention is directed to a resistor (*see, e.g.*, FIG. 1, element 36; FIG. 2, element 250) comprising phase change material which is able to be in a first phase and a second phase (*see e.g.*, paragraph 56), the resistor having a surface with a first contact area (*see, e.g.*, FIG. 1, element 5) and a second contact area (*see, e.g.*, FIG. 1, element 6), the resistor having an electrical resistance between the first contact area and the second contact area, the electrical resistance having a first value when the phase change material is in the first phase and a second value when the phase change material is in the second phase (*see, e.g.*, paragraph 57). A first conductor (*see, e.g.*, FIG. 1, element 3; Fig. 2, element 130) is electrically connected

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to the first contact area. A second conductor (*see, e.g.*, FIG. 1, element 4; FIG. 2, element 270) is electrically connected to the second contact area. The first conductor, the second conductor and the resistor being able to conduct a current for heating of the phase change material to enable a transition from the first phase to the second phase (*see, e.g.*, paragraph 61). A layer of dielectric material for reducing a heat flow to parts of the body free of the resistor during the heating (*see, e.g.*, FIG. 1, elements 20 and 39; FIG. 2, elements 126, 140 and 260), the dielectric material comprising a porous material with pores having a size between 0.5 and 50 nm (*see, e.g.*, paragraph 63).

As required by 37 C.F.R. § 41.37(c)(1)(v), a concise explanation of the subject matter defined in the independent claim involved in the appeal is provided herein. Appellant notes that representative subject matter is identified for this claim; however, the abundance of supporting subject matter in the application prohibits identifying all textual and diagrammatic references to each claimed recitation. Appellant thus submits that other application subject matter, which supports the claim but is not specifically identified above, may be found elsewhere in the application. Appellant further notes that this summary does not provide an exhaustive or exclusive view of the present subject matter, and Appellant refers to the appended claims and their legal equivalents for a complete statement of the invention.

#### **VI. Grounds of Rejection to be Reviewed Upon Appeal**

1. Claims 1-4 and 8-11 stand rejected under 35 U.S.C. § 103(a) over Chiang (U.S. Patent No. 6,339,544) in view of Yan (U.S. Pub. No. 2002/0134995).
2. Claims 5-7 stand rejected under 35 U.S.C. § 103(a) over Chiang (U.S. Patent No. 6,339,544) in view of Yan (U.S. Publication No. 2002/0134995) and further in view of Hawker (U.S. Patent No. 6,670,285).
3. Claim 12 stands rejected under 35 U.S.C. § 103(a) over Chiang (U.S. Patent No. 6,339,544) in view of Yan (U.S. Publication No. 2002/0134995) and further in view of Ovshinsky (U.S. Patent No. 6,141,241).

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## VII. Argument

**A. The Section 103(a) rejection of claims 1-4 and 8-11 over Chiang in view of Yan is improper because there is no motivation to modify Chiang with the Yan reference.**

There is no motivation to combine the asserted references:

The Section 103(a) rejection of claims 1-4 and 8-11 must be reversed because there is insufficient showing of motivation to combine the asserted references. The Examiner acknowledges that the Chiang reference does not teach that dielectric material 210 is a porous material with pores having a size between 0.5 and 50 nm. In an attempt to overcome this deficiency the Examiner cites to portions of the Yan reference that teach a dielectric material (which has pores preferably less than 5 nm in size) that can be applied as a thin film. *See, e.g., Yan* at paragraph 7.

The Examiner's assertion of obviousness relies upon the supposition that because porous materials exist which have favorable characteristics for the Yan application; therefore, it would have been obvious to use such porous materials in the Chiang application. Such an assertion is fundamentally flawed because it fails to show why one of skill in the art would use the teachings of the Yan reference in the context of the teachings of the Chiang reference. More specifically, there is no motivation to replace Chiang's dielectric material 210 with the material taught by Yan. The context of the Examiner's asserted motivation is with regard to improving upon the properties of sol-gels and other extremely low dielectric constant materials. *See, e.g., Chiang* at paragraph 4 (contrasting the short comings of sol-gels and organic polymers). Regardless as to whether or not the Chiang reference may improve upon certain characteristics of sol-gels and organic polymers, there is no motivation in the references that would lead one of skill in the art to use such materials in the Yan reference.

Merely showing that various elements exist in the prior art, without more, is insufficient for a showing of obviousness. "A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (U.S. 2007). In this instance, the Examiner has not addressed why one of skill in the art would find the asserted combination obvious. Instead the Examiner has merely pointed to various characteristics touted as advantageous in terms

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of the Yan reference. A proper showing of obviousness would construe such characteristics in terms their desirability for use in the Chiang reference. Such a failure to address the rationale for combining two known devices is improper and cannot be the basis for a rejection. More specifically, "(a)lthough common sense directs caution as to a patent application claiming as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the art to combine the elements as the new invention does. Inventions usually rely upon building blocks long since uncovered, and claimed discoveries almost necessarily will be combinations of what, in some sense, is already known." *Id.*

Accordingly, the rejections must be reversed for failing to show that the asserted combination is obvious.

The asserted references teach away from claims 1-4 and 8-11:

The rejections must be reversed because there is insufficient motivation to combine the Takashima and Deak references where the references teach away from the asserted combination. *See In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983). The Chiang reference teaches the desirability of low thermal conductivity. *See, e.g., Chiang* at Col. 5:31-33. In contrast, the Yan reference teaches that low thermal conductivity is undesirable. *See, e.g., Yan* at paragraphs 3-4. Thus, one of skill in the art would not be motivated to use the porous material of the Yan reference, which teaches away from the use of a material with low thermal conductivity, in the Chiang reference, which teaches the desirability of low thermal conductivity.

In view of the above discussion, one of skill in the art would not be motivated to modify the teachings of the Chiang reference with those of the Yan reference. Accordingly, the rejections must be reversed.

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**B. The Section 103(a) rejection of claims 5-7 under 35 U.S.C. § 103(a) over Chiang in view of Yan and further in view of Hawker is improper because there is no motivation to modify Chiang reference with the Yan reference.**

The Section 103(a) rejections of claims 5-7, which depend from claim 1, must be reversed in view of the above discussion regarding the rejection of independent claim 1. That is, where an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *See, e.g., In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). In this regard, further discussion of the dependent claimed limitations is unnecessary as the rejections must be reversed for the aforementioned reasons.

**C. The Section 103(a) rejection of claim 12 under 35 U.S.C. § 103(a) over Chiang in view of Yan and further in view of Ovshinsky is improper because there is no motivation to modify the Chiang reference with the Yan reference.**

The Section 103(a) rejection of claim 12, which depends from claim 1, must be reversed in view of the above discussion regarding the rejection of independent claim 1. That is, where an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *See, e.g., In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). In this regard, further discussion of the dependent claimed limitations is unnecessary as the rejections must be reversed for the aforementioned reasons.

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**VIII. Conclusion**

In view of the above, Appellant submits that the rejections of claims 1-12 are improper. Appellant therefore requests reversal of the rejections as applied to the appealed claims and allowance of the entire application.

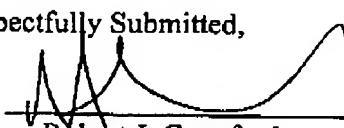
Authority to charge the undersigned's deposit account was provided on the first page of this brief.

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**APPENDIX OF CLAIMS INVOLVED IN THE APPEAL  
(S/N 10,530,449)**

1. An electric device with a body having:
  - a resistor comprising a phase change material which is able to be in a first phase and in a second phase, the resistor having a surface with a first contact area and a second contact area, the resistor having an electrical resistance between the first contact area and the second contact area, the electrical resistance having a first value when the phase change material is in the first phase and a second value when the phase change material is in the second phase,
  - a first conductor electrically connected to the first contact area,
  - a second conductor electrically connected to the second contact area,
  - the first conductor, the second conductor and the resistor being able to conduct a current for heating of the phase change material to enable a transition from the first phase to the second phase, and
  - a layer of a dielectric material for reducing a heat flow to parts of the body free of the resistor during the heating, the dielectric material comprising a porous material with pores having a size between 0.5 and 50 nm.
2. An electric device as claimed in claim 1, wherein the pores have a size between 1 and 10 nm.
3. An electric device as claimed in claim 1, wherein the pores are substantially free of water.
4. An electric device as claimed in claim 1, wherein the pores have hydrophobic surfaces.
5. An electric device as claimed in claim 4, wherein the porous material comprises an organosilicate and the hydrophobic surfaces have hydrocarbyl groups.



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6. An electric device as claimed in claim 5, wherein the porous material is obtainable by

applying a liquid layer of a composition comprising tetra-alkoxysilane, hydrocarbylalkoxysilane, a surfactant and a solvent onto a substrate, wherein the molar ratio between tetra-alkoxysilane and hydrocarbylalkoxysilane is 3:1 at the most, and

heating the liquid layer to remove the surfactant and the solvent and to form the hydrophobic porous layer.

7. An electric device as claimed in claim 6, characterized in that the surfactant is a cationic surfactant, and the surfactant and the totality of alkoxysilanes are present in a molar ratio greater than 0.1:1.

8. An electric device as claimed in claim 1, characterized in that the porous material has a porosity above 20 percent.

9. An electric device as claimed in claim 1, characterized in that the resistor is embedded in the body, the layer being in direct contact with the resistor.

10. An electric device as claimed in claim 9, characterized in that the first contact area is smaller than the second contact area, and the first conductor comprises a part in direct contact with the first contact area, the part being embedded in the layer.

11. An electric device as claimed in claim 1, characterized in that the first conductor, the second conductor, the resistor and the layer constitute a memory element, and the body comprises:

an array of memory cells, each memory cell comprising a respective memory element and a respective selection device, and

a grid of select lines, each memory cell being individually accessible via the respective select lines connected to the respective selection device.

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12. An electric device as claimed in claim 11, characterized in that:
- the selection device comprises a metal oxide semiconductor field effect transistor having a source region, a drain region and a gate region, and
  - the grid of select lines comprises N first select lines, M second select lines, N and M being integers, and
  - an output line, the first conductor of each memory element being electrically connected to a first region selected from the source region and the drain region of the corresponding metal oxide semiconductor field effect transistor, the second conductor of each memory element being electrically connected to the output line, a second region of the corresponding metal oxide semiconductor field effect transistor which is selected from the source region and the drain region and which is free from the first region, being electrically connected to one of the N first select lines, the gate region being electrically connected to one of the M second select lines.

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### **APPENDIX OF EVIDENCE**

Appellant is unaware of any evidence submitted in this application pursuant to 37 C.F.R. §§ 1.130, 1.131, and 1.132.

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### **APPENDIX OF RELATED PROCEEDINGS**

As stated in Section II above, Appellant is unaware of any related appeals, interferences or judicial proceedings.